Surface energy and ...

S/137/62/000/006/003/163 A006/A101

refinement of high-temperature lanthanoide modification.

A. Shalimov

[Abstracter's note: Complete translation]

Card 2/2

11.3950 11.4100

5/126/61/011/003/001/017 E032/E414

AUTHOR:

Zadumkin, S.N.

TITLE:

A New Version of the Statistical Electron Theory of

the Surface Tension of Metals

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.3,

pp.331-346

TEXT: The Thomas Fermi statistical theory is used to develop an expression for the surface tension of metals as a function of temperature. The formulae obtained are used to predict numerical values for Na, K, Rb, Cs, Mg, Ca, Sr and Ba. The theory is developed from the following basic considerations. Consider a model of a metal in which the positive ions are looked upon as immersed in an electron liquid whose density is $\rho(x)$, where the X axis forms an outward normal to the metal-vacuum separation boundary. The separation boundary is assumed to be in the form of a plane, so that the problem is essentially one-dimensional. the first approximation, the electron density $\rho(x)$ and the potential V(x) near the surface of the metal can be calculated using the method put forward by Frenkel' (Ref.13). the Thomas-Fermi approximation yields Card 1/8

21215 \$/126/61/011/003/001/017 E032/E414

A New Version ...

$$\nabla^2 V = \frac{d^3 V}{dx^2} = 4\pi e \rho(x) = 4\pi \gamma e V^{2/3}(x). \tag{1}$$

where e is the electronic charge, $\gamma = 2^{3/2}/5\pi^2 e^2 a_0^2$ and a_0 is the first Bohr orbit. For x < 0

$$\nabla^2 V = \frac{d^2 V}{dx^4} = 4\pi e \left[\rho(x) - v_+(x) \right] = 4\pi \gamma e \left[V^{2/2}(x) - V_+^{2/2} \right]. \tag{2}$$

化工作 引起,并不是一个人,但是一个人,我们们的人,我们们的人,我们们们的人,我们们们的人,我们们们的人,我们们们的人,我们们们的人,我们们们的人,我们们们们的人,我们

where $V_{\perp}(x)$ is the positive ion density and

$$eV_1 = E_S = \frac{5}{3} k_K \rho^{2/3}$$
 (∞).

Eq.(1) and (2) are joined on the surface x = 0 subject to the requirement that V and dV/dx are continuous. Since the system is neutral, dV/dx = 0 when $x = \pm \infty$. Moreover, V = 0 when $x = + \infty$, and $V = V_1$ when $x = -\infty$. The solution of Eq.(1) and (2), subject to the above boundary conditions, gives the

Card 2/8

 $\begin{array}{c} 21215\\ \text{S}/126/61/011/003/001/017}\\ \text{A New Version} & \text{E032/E414}\\ \text{following expressions for the electron density and the potential}\\ \\ \rho(e) = \rho(\infty)\chi^{\text{Mid}}(e);\\ V(e) = V_1\chi(e);\\ \\ \psi_{\text{here}}\\ \\ \chi_{\epsilon}(e) = \frac{\chi(0)}{(1+\epsilon'/b)^{\epsilon}} \text{ nph } \epsilon > 0 \\ \\ \epsilon = \frac{\chi(e)}{\chi(e)} \frac{d\chi(e)}{|\epsilon'_{1}\chi(e) - 2\chi(e) + \epsilon'_{1}|^{\epsilon}} \text{ nph } \epsilon < 0, \\ \\ \epsilon = \chi/s; s = (3\epsilon/2^{2\epsilon})^{\epsilon}(\epsilon/a_{0}V_{1})^{\epsilon/\epsilon}a_{0}; \chi(0) = \frac{s}{\epsilon}; b = 2(125/3)^{\epsilon/\epsilon}.\\ \\ \text{Moreover, for } \epsilon \leqslant 0 \\ \\ \chi_{1}(e) = 1 - \frac{A}{(1-\epsilon/b)^{\epsilon}} \end{array}$

S/126/61/011/003/001/017 A New Version ... E032/E414

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In order to determine the constants. A and n one can use the equations

$$\chi_{i}(0) = \chi_{e}(0).$$

$$\left(\frac{d\gamma_{i}}{d\epsilon}\right)_{\epsilon=0} = \left(\frac{d\gamma_{e}}{d\epsilon}\right)_{\epsilon=0}.$$
(8)

(9)

from which it is found that $A = 1 - \chi$ (0) and n = 6, and consequently

$$\chi_i(e) = 1 - \frac{1 - \chi(0)}{(1 - e/b)^4}$$
 upu $e < 0$. (10)

Following Wigner and Seitz (Ref.12), the crystal lattice is divided as follows. The lines connecting a given atom with its nearest neighbours are cut at their mid-points by planes perpendicular to them. In this way each atom becomes confined to a corresponding polyhedron formed by this construction. The polyhedron is then replaced by a sphere of equivalent volume. It Card 4/8

[2] 前针有数据引起往来非常差别的过程指示的形态的光度的形态的形势的影片的形势的变体是美国的变体的影响的影响的影响,现在不同类的重要的最后的影响和"他们的体制"更多形式和"是他们的特别"的

21215 \$/126/61/011/003/001/017 E032/E414

A New Version ...

is quite clear that, at a sufficient distance from the boundary, each of these elementary spheres is electrically neutral since it contains a positive ion with a charge z and z electrons (z is the average number of valence electrons per atom). The electron gas density in the elementary sphere is $\rho(x) = z(x)/\Omega(x)$ where $\Omega(x)$ is the volume of the elementary sphere and is equal to $\frac{4}{2}\pi R^3(x)$. On the first approximation R(x) = R(cc) = R. formalism is continued to compute the free surface energy of the metal and to determine the Gibbs surface. The calculation is divided into two parts, namely the contributions of the external and internal electron densities to the surface energy, elementary spheres at a sufficient distance from the boundary are neutral and the electron clouds of neighbouring ions do not overlap, their interaction is assumed to be largely of the Van der Waals type. In the neighbourhood of the transition layer, the elementary spheres are no longer neutral and the electrostatic interaction energy between positively charged elementary spheres must be taken into account, The final expression for the surface tension includes terms representing the Coulomb, the zero-point and the Card 5/8

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S/126/61/011/003/001/017 E032/E414

A New Version ...

Card 6/8

exchange-correlation energy, as well as the Weizsacker correction to the Fermi energy. Table 1 shows the calculated and the experimental values of the surface tension of liquid metals. A detailed examination of the various contributions to the surface energy shows that non-Coulomb forces constitute a negative contribution while the Weizsacker correction is quite small. Planes having the maximum reticular density have the minimum molar surface energy. The temperature coefficients of surface energy are negative for all the metals. The surface energy of the liquid metal approaches the surface energy of the crystal face with the minimum specific surface energy. The surface energy obtained in the present paper is very close to the theoretical result of R. Stratton (Ref.7). The fact that previously published theoretical values for the surface energy of metals are not in good agreement with experiment is ascribed to the fact that not all the contributions to the energy of the metal were taken into account. Acknowledgments are expressed to the Chairman of the Intercollegiate Colloguium on Surface Phenomena in Melta of the IONKh AS USSR. Professor V.K.Semenchenko, who introduced the present paper to the

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S/126/61/011/003/001/017
E032/E414

Colloquium on April 12, 1960. There are 3 tables and 24 references: 15 Soviet and 9 non-Soviet.

ASSOCIATION: Kabardino-Balkarskiy gosudarstvennyy universitet (Kabardino-Balkar State University)

SUBMITTED: June 7, 1960

"APPROVED FOR RELEASE: 03/15/2001

CIA-RDP86-00513R001963410010-6

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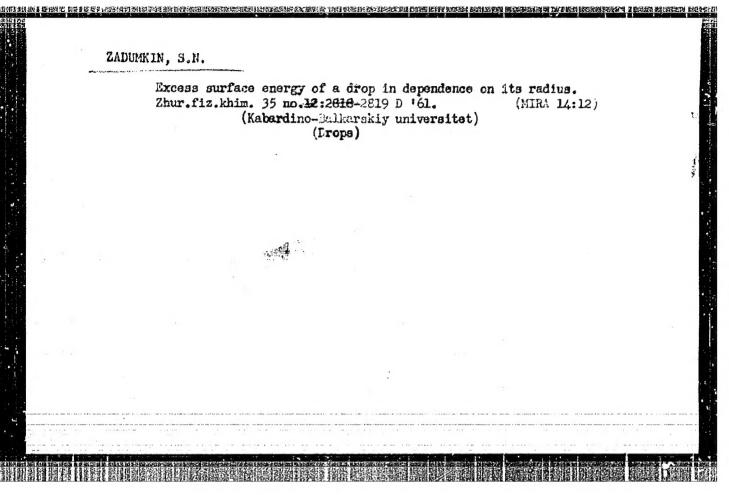
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S/126/61/011/003/001/017 E032/E414

Table 1.

-	-	***			11.				
				Teop	eTH46CK	te 3H84e	HHM Cal	culateri	Values
	-	23.5	B = 2 C	Nam.		UE		1	1.
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Металл	значения	9	3.5	\$04	6.4	-=	1	X A	работы
Metal	Exper.	0 0	W 7	1 50 K	10	2	Ŧ.Ē	1 .3	143
	values	7.5	XX.<	amz.e.g	4.2	\$ 200	Straffo Crpelitor	Bengon Bengon	Hace
		A. 25	4449	€< = 2 €	द्रस	₹ × 58	40	ឲ្យក្ន	0 =
Na	191	400	777	208,00	50-60	440	190	98	196
K	101	224	333	114,60	-	180	190 70	98 33 27 23	86,8
KB Co	77,5	_	_	_		140	-50	27	59,8
Me	547	_	_	204		110	40	23	48.0 530
K Re Ce Mg Ca Sr	365		_	130	_		_		420
	-	-	_		-	-	_		272
Ba		_				-	_	-	248

Card 8/8



ZADUMKIN, S,N. (Nalichik)

Surface activity of metals. Izv. AN SSSR. Otd. tekh. nauk. Met. 1 topl. no.1:168-169 Ja-F '62. (MIRA 15:2)

Kabardino Balkarskiy gosudarstvennyy universitet.
 (Liquid metals)
 (Surface tension)

8/159/62/000/004/009/018 E132/E435

AUTHORS :

Zadumkin, S.N., Khulamkhanov, V.Kh.

TITLE:

The surface energies of certain oxides, sulphides and

selenides

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Fizika,

no.4, 1962, 112-114

By the approximate methods already explained (Izv. VUZ Fizika, no.2, 1958 and no.6, 1960 and Uch. zap. KBGU, no.3, 1959), surface energies of certain oxides, sulphides and selonides which have the NaCl or wurtzite structure with a significantly ionic bond character are calculated. The compounds in question are MgO, CaO, BaO, NiO, MgS, CaS, CaSe, MnO, BaSe, ZnO, ZnS. The calculated values for the 100 planes (if cubic) or 1000 planes (if hexagonal) of compounds of the NaCl type depart from the results of Born by 5 to 10% except for MgO and MnO for which the deviation is 20%. This latter is explained by the inexactitude in n - which is Using a formula given in ZhNKh, v.55, no.11, 1959 by one of the present authors, S.N.Zadumkin, the surface energy is undefined. also calculated including the anharmonicity of the ionic Card 1/2

The surface energies ...

S/139/62/000/004/009/018 E132/E435

vibrations but the lack of experimental values of the Debyo characteristic temperatures prevent the results from having any practical use. There is 1 table.

ASSOCIATION: Kebardino-Balkarskiy gosuniversitet

(Kabardino-Balkarian State University)

SUBMITTED: February 24, 1961

Card 2/2

"APPROVED FOR RELEASE: 03/15/2001 CI

但有种,是非常,因为自己的对象。在民间证据,这个公共,他们的图像有理的现在分词。

CIA-RDP86-00513R001963410010-6

S/185/62/007/007/001/010 1048/1248

AUTHOR:

Zadumkin, S.N.

TITLE:

On the statistical electron theory of the free

surface energy of binary metal solutions

PERIODICAL:

Ukrains'kyy iizychnyy zhurnal, v.7, no.7,

1962, 715-719

TEXT: The free surface energy of binary metallic solutions (σ) is derived on the basis of the general statistical law for the ordering of atoms in a solution and the theory of the surface energy of metals previously developed by the author (FMM v.ll, no.3, 1961, 331). The short-range order only is taken into account and the following equation is obtained for very low concentrations

Card 1/2

S/185/62/007/007/001/010 1048/1248

On the statistical electron ...

with a relatively high degree of absorption of the additive:

 $G' \simeq \sigma_A / [1 - \delta_B^{(0)} (1 - n_A/n_B)],$ (22)

。 1987年,1987年,1988年,1988年,1988年,1988年,1988年,1988年,1988年,1988年,1988年,1988年,1988年,1988年,1988年,1988年,1988年,1988年,19

where σ_A is the σ of the solvent, $\delta_B^{(0)}$ is the absorption of the solutions, n_A and n_B are the number of particles in one sq.cm. of the surface of the pure solvent and solute, respectively. Calculations based on this equation agree with published experimental data. Thus, in the case of a cesium amalgam at 22°C (cesium concentration the experimental value (taken from P.P. Pugachevich and O.A. Timofeevicheva, $\Sigma h \in Kh33$, no.10, 2196, 1959) is 345.0 erg/sq.cm. This is the first discussion of the surface energy of dilute metallic solutions in the light of the electron theory.

ASSOCIATION: Kabardino-Balkarskiy universitet (The Kabardino-Balkarskiy University, Nal'chik)

Card 2/2

ZADUMAIN, S.N.

Statistical electron theory of the interfacial energy of metals at the crystal - melt boundary. Fig.met.1 metalloved. 13 no.1:24-32 Ja '62. (MHA 15:3)

1. Kabardino-Balkarskiy gosudarstvennyy universitet.
(Surface energy) (Electron analog computers)

s/126/62/013/005/003/031 E032/E514

AUTHORS:

Zaduskin, S.N. and Khokonov, Kh.B.

PITLE:

The surface energy of thin metallic films

PERIODICAL: Fizika metallov i metallovedeniye, v.15, no.5, 1952,

653-662

It has been suggested that the surface energy of thin films, small drops and so on may be different from the surface every of matter in bulk and the aim of the present paper is to investigate this problem for thin metallic films, using the statistical electron theory of surface energy developed by the first of the present authors in a previous paper . . (FM:, 1961, 11, 551). The film is assumed to be isotropic and quasi-uniform, surface irregularities are taken to be absent, the "weight thickness" is such that h < h and q = h /h < 1 and 1 - q < 1. The Thomas-Fermi equation for the film is solved using the isotropic model of a metal put forward by Ya. I. Frenkel' . . (Zs.Phys., 1923, 49, 31), and an explicit expression is obtained for the surface energy. It is found that the latter is mainly dependent 6. For example, in the case of potassium on the parameter Card 1/2

The surface energy of thin ...

s/126/62/013/005/005/031 E052/E514

with a thickness of about 100 % and ô = 0.2, the relative change in the surface energy is about 30%. When 5 = 0 the surface energy of a metal film with thickness $h \geqslant 30s$ (s = 0.916 Å for potassium and 0.762 Å for calcium) is practically identical with the surface energy of massive specimens. There are I figure and

ASSOCIATION:

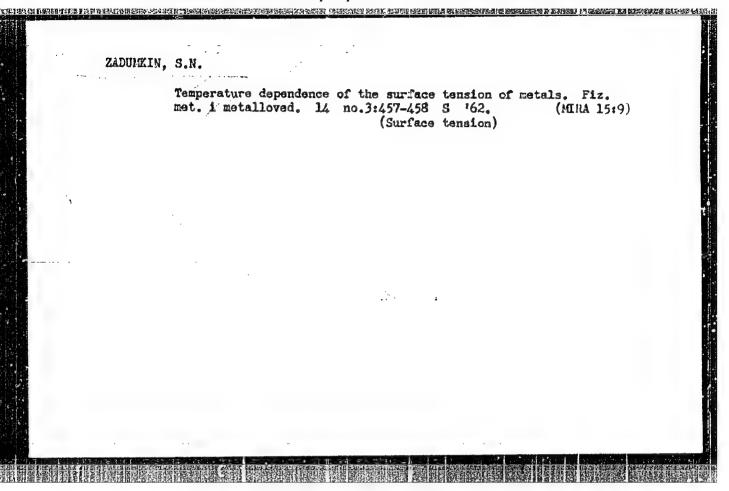
Kabardino-Balkarskiy gosuniversitet

(Kabardino-Balkarian State University)

SUBMITTED:

July 17, 1961 (initially) December 16, 1961 (after revision)

Card 2/2



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Zadumkin, S. N., Pugachevich, P. P.

等的行列,在中国的特别的特别的特别的特别的一种,但是不是一种的特别的一种,他们可以使用的一种的一种,但是一种的一种的一种,可以使用的一种的一种的一种的一种的一种

TITLE:

Temperature dependence of the surface tension of metals

PERIODICAL:

AUTHORS:

Akademiya nauk SSSR. Doklady, v. 146, no. 6, 1962, 1363-1366

TEXT: In Fiz. met. i metalloved., v. 11, no. 3, 331 (1961) S. N. Zadumkin, calculated the temperature dependence, dofdT, of the surface tension of liquid metals without considering the facts that ionic vibrations are annually and that the Fermi energy μ_0 is thermally smeared out. The

formula presented here allows for those factors: $\frac{d\sigma'}{dT} = -\left\{2\alpha_1'\sigma' + 0.81 \text{ SD} \left[\frac{R}{A} + 8T(\frac{k}{h}\sqrt{R}\theta)^2 + 24.6 \text{ Z} \frac{R}{A}\frac{kT}{m_0}\right]\right\}, \text{ where } \alpha_1' \text{ is the area of linear thermal expansion; D is the density of the liquid$

coefficient of linear thermal expansion; D is the density of the liquid metal; $S = (37/2^{7/2})^{1/2}$ (e/a_o V_i)^{1/4}a_o; R is the gas constant; Z is the mean number of free electrons per metal atom. The remaining symbols are defined in the paper cited above. The first three addends in this formula Card 1/4

\$/020/62/146/006/014/016 B107/B186

Temperature dependence ...

are approximately equal while the last is greater by nearly one order of magnitude. The first and third terms correspond to the anharmonic vibrations of ions as well as to the expansion of the metal and to the change in ionic energy associated therewith; the second term corresponds to the altered ionic vibrations in the transition region produced by an electron density gradient; the last term corresponds to the smearing out of the Fermi energy. Using Grüneisen's and Lindemann's approximations, the

formula can be rewritten as $\frac{dG}{dT} = -\left\{\frac{0.044\pi}{T_S} + \frac{0.328}{V_a} \left(\frac{V_a}{Z}\right)^{1/6} \left[1 + 0.832 \frac{T}{T_S} + 0.82 \cdot 10^{-4} \left(\frac{Z}{V_a}\right)^{1/3} V_a T\right]\right\}$

where T_S is the melting point, and V_a is the atomic volume. Table 1 shows that the experimental values of $d\sigma/dT$ are consistent with calculated data. There is 1 table as

ASSOCIATION: Kabardino-Balkarskiy gosudarstvennyy universitet (Kabardino-Balkarskiy State University). Institut obshchey i neorgani-cheskoy khimii im. N. S. Kurnakova Akademii nauk (ISSR)

Card 2/4

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001963410010-6"

Temperature dependence ... S/020/62/146/006/014/016

[Institute of General and Inorgenic Chemistry imeni N. S.

PRESENTED: May 31, 1962, by I. I. Chernyayev, Academician

SUBJITTED: May 29, 1962

Legend to Table 1: (1) metal; (2) d /dT, erg/cm²·deg; (3) calculated

Card 3/4

s/181/63/005/001/007/064 B102/B186

AUTHORS;

Zadumkin, S. N., and Khulamkhanov, V. Kh.

TITLE:

A simple method for calculating the surface energy of

ionic crystals

PERIODICAL: Fizika tverdogo tela, v. 5, no. 1, 1963, 48-51

TEXT: The surface energy σ_0 of the (100) face of alkali halide crystals at T=0 had already been determined by many authors, but their results differed widely. The simple method put forward here affords not only the Madelung and Born energies, but also the possibility of determining the parts played by dipole-dipole and quadrupole-dipole interaction and by zero energy oscillations in bringing about σ_0 (100). The energy $E_V^{(k)}$ of an ion - be it Coulomb, Van der Waals, Born or any other sort of energy - is written as $E_V^{(k)} = E_V^{(k)} + 2E_{VR}^{(k)}, \qquad (1)$

where $E_{os}^{(k)}$ is the energy of the k-th ion in a plane grid, and $2E_{v/2}^{(k)}$ the Card 1/3

A simple method for ... 8/181/63/005/001/007/064 energy of the ion in the crystal when the plane grid is disregarded. The extra surface energy per ion is given by $\Delta E^{(i)} = E^{(i)}_{*,n} - E^{(i)}_{*,n} \quad (2),$ where $E^{(k)}_{*,n} = E^{(k)}_{0,n} + E^{(k)}_{n,n} \quad (3)$, therefore $\Delta E^{(i)} = \frac{1}{2} E^{(i)}_{*,n} \frac{E^{(i)}_{0,n}}{E^{(i)}_{0,n}} - 1$. (4). Introducing the energy relationship $E^{(i)}_{*,n} = \frac{A^{(i)}_{n,n}}{A^{(i)}_{n,n}}, \quad \text{denoted below by } \eta \quad (k),$ the expression obtained for the total molar surface energy of the (100) face is: $\sigma^{(i)}_{0}(100) = \frac{1}{2} \sum_{k} E^{(k)}_{k} (\eta^{(k)}_{k} - 1), \quad \text{where the summation over k covers}$ all forms of binding energy. If $2r^{-2}$ is the number of all particles of the same sign per unit area of (100), then $\sigma^{(i)}_{0}(100) = 4r^{-2} \sum_{k} E^{(k)}_{k} (\eta^{(k)}_{k} - 1),$ If the internal anion-cation binding energy is taken into account, then

A simple method for ...

S/181/63/005/001/007/064 B102/B186

$$\sigma_0(100) = \frac{1}{4r^2} \left[\sum_{k} E_s^{(k)} (\eta^{(k)} - 1) - 0.381 E_0 \right]. \tag{9}$$

 $E_0 = h\nu/2$. The expression for the contribution of the zero oscillation energy to $\sigma_0(100)$ is given by $\Delta\sigma \simeq -0.0952E_0/r^2$. The η (k) and σ components and the total value of $\sigma_0(100)$ are tabulated for 12 alkali halide orystals. There are 2 tables.

ASSOCIATION: Kabardino-Balkarskiy gosudarstvennyy universitet, Nal'chik (Kabardino-Balkar State University, Nal'chik)

SUBMITTED: July 16, 1962

Card 3/3

ACC NR: AR6035406

SOURCE CODE: UR/0137/66/000/C09/A007/A007

AUTHOR: Zadumkin, S. K.

Title College of the College of the

TITLE: Modern theories of the surface energy of pure metals

SOURCE: Ref. zh. Metallurgiya, Abs. 9A40

REF. SOURCE: Sb. Poverkhnostn. yavleniya v rasplavskh i vosnikayushchikh iz nikh tverd. fazakh., Nal'chik, 1965, 12-29

TOPIC TAGS: metal surface, surface energy, surface tension, statistic analysis, melting point

ABSTRACT: This is a review of the theories of surface tension σ of pure metals. The main premises of the statistical electron theory of σ , developed by the author, are considered. The experimental and calculated values of σ are generalized for pure metals at the melting temperature. Bibliography, 83 titles. D. Kashayeva. [Translation of abstract]

SUP CODE: 11, 20

UDC: 669-154:532.61

Card 1/1

ZADUMKIN, S.N.; PUGACHEVICH, P.P.; NGUYEN FONG

Temperature dependence of the surface energy of transition metals. Zhur.fiz.khim. 39 no.10:2591-2595 0 465.

(MJ.RA 18:12)

1. Kabardino-Balkarskiy gosudarstvennyy universitet i Moskovskiy khimike-tekhnologicheskiy institut imeni Mendeleyeva. Submitted July 9, 1964.

ACC NR: AR6013660

SOURCE CODE: UR/0058/65/000/010/E010/E010

AUTHOR: Zadumkin, S. N.; Khokonov, Kh. B.

TITLE: Dependence of the surface energy of a metal drop on its radius

SOURCE: Ref. zh. Fizika, Abs. 10E75

REF SOURCE: Uch. zap. Kabardino-Balkarsk. un-t. Ser. fiz.-matem. n., vyp. 19, 1963,

的连接性对象也并且非常体系的更多的连续的连续还是在在现代的部门的对连环境的生活的一种对抗的连续的正常的一种,这种对于特别的一种,这种对于特别的一种,这种对抗原则的

505-508

TOPIC TAGS: surface property liquid metal, magnetic thin film, metal Surface

TRANSLATION: It is shown that the change in the surface energy of a metal drop with a change in its radius is subject to the law as is a thin film, only with higher values of the corresponding coefficients (see RZhFiz, 1962, 11E521).

SUB CODE: 11,20

UDC: 532+537.311+538.1

Card 1/1

ACC NR: AR7000868

SOURCE CODE: UR/0058/66/000/009/E043/E043

AUTHOR: Khokonov, Kh. B.; Zadumkin, S. N.

TITLE: Dependence of the interphase energy of metals at the crystal-fusion interface on particle size

SOURCE: Ref. zh. Fizika, Abs. 9E348

REF SOURCE: Sb. Poverkhnostn, yavleniya v rasplavakh i voznikayushchikh iz nikh tverd, fazakh, Nalichik, 1965, 75-78

TOPIC TAGS: surface tension, electron microscopy, interphase energy, particle size, ion microscopy, grain surface.

ABSTRACT: On the basis of the statistical electron theory of surface tension (RZhFiz, 1961, 11E209) an approximate equation is derived to calculate the specific free interphase energy on at the interface of the melt with spherical metallic grains (applicable to metals of groups IA and IIA). It is shown that on decreases as the grain size decreases. B. Summ. See also: Structural analysis: interaction between radiations and solid bodies. Volume A—Devices and installa-

Card 1/2

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ACC NR: AR7000867

SOURCE CODE: UR/0058/66/000/009/E043/E043

AUTHOR: Karashayeva, A. A.; Zadumkin, S. N.

TITLE: Interphase surface energy at the interface of dissimilar metals

SOURCE: Ref. zh. Fizika, Abs. 9E346

REF SOURCE: Sb. Poverkhnostn. yavleniya v rasplavakh i voznikayushchikh iz nikh tverd. fazakh. Nal'chik, 1965, 79-84

TOPIC TAGS: zinc surface energy, cadmium surface energy, tin surface energy, surface energy, zinc mercury system

ABSTRACT: Based on the statistical theory of the surface energy of metals, the interphase energy is evaluated at the interface of dissimilar metals. Approximate equations are derived and used, calculating the values of surface energy at 20°C for zinc, cadmium and tin at the interface with nearly all metals of the groups I to IV. The results show that if the electron density of the metal being studied (Zn, Cd, Sn) is higher than that of the elements of the given group of the Periodic Table of Elements, the interphase energy increases with the increasing atomic number of the elements. A good correlation is shown for the zinc mercury

Card 1/2

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ACC NR. AR7000866 SOURCE CODE; UR/0058/66/000/009/E042/E043

AUTHOR: Zadumkin, S. N.; Karashayev, A. A.

TITLE: Correlation between surface energies of metals in the solid and liquid

SOURCE: Ref. zh. Fizika, Abs. 9E345

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REF SOURCE: Sb. Poverkhnostn. yavleniya v rasplavakh i voznikayushchikh iz nikh tverd. fazakh. Nal'chik, 1965, 85-88

TOPIC TAGS: solid state, liquid metal, zinc mercury interface, polycrystal, surface energy, heat of sublimation, heat of mixing

ABSTRACT: An approximation equation has been derived for calculating the surface energy on the interface of solid and liquid metals as a function of the surface energy of both metals, their coordination numbers, heats of sublimation, heat of mixing, and other parameters. The obtained equation is used to evaluate the correlation between the surface energy of solid and liquid metals, to determine the surface energy on the interface of polycrystal grains, and on the interface of two polymorphous phases. The surface energy on the interface of ZN/Hg was also calculated. B. Summ. [Translation of abstract]

Card 1/1 SUB CODE: 11, 20/

ACC NRI AR7000865 - SOURCE CODE: UR/0058/66/000/009/E042/E042

AUTHOR: Dokhov, M. P.; Zadumkin, S. N.

TITLE: The surface energy of metals of the actinide group

SOURCE: Ref. zh. Fizika, Abs. 9E344

REF SOURCE: Sb. Poverkhnost, yavleniya v rasplavakh i voznikayushchikh iz nikh tverd, fazakh. Nal'chik, 1965, 119-120

TOPIC TAGS: actinide, actinide metal, calculation, metal

ABSTRACT: The calculated values of the surface energy of certain actinides (Th, Pa, U, Np, Pu, Am, Cm) were compared. The equations of Zadumkin, Taylor, and MacLacklin were used for calculations. [Translation of abstract]

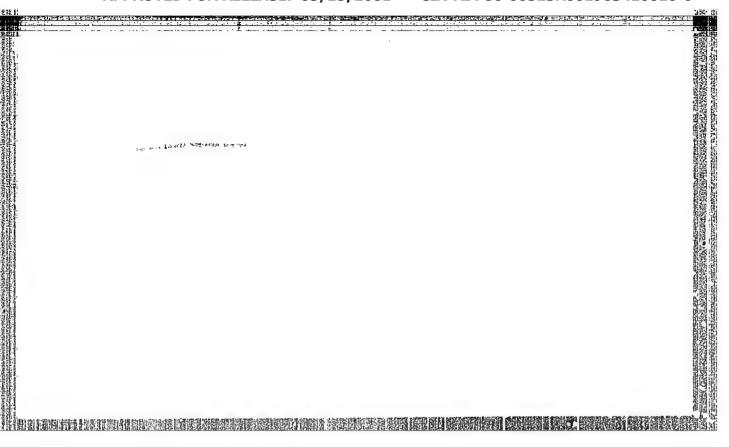
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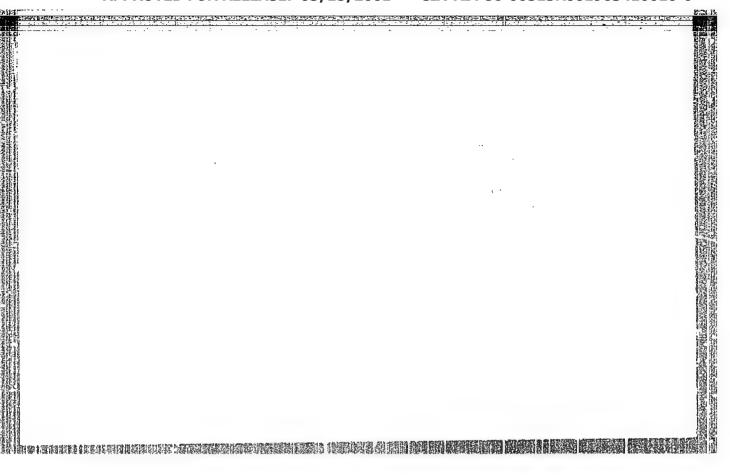
Card 1/1

ZADUMXIN, S.N.; KANASHAYEV, A.A.

Interphase surface energy of metals at the boundary with dielectric fluids. Piz.-khim. mekh. mat. 1 no.21139-161 '65. (MIRA 18:6)

1. Kabardino-Balkarskiy universitet, Nal'chik.

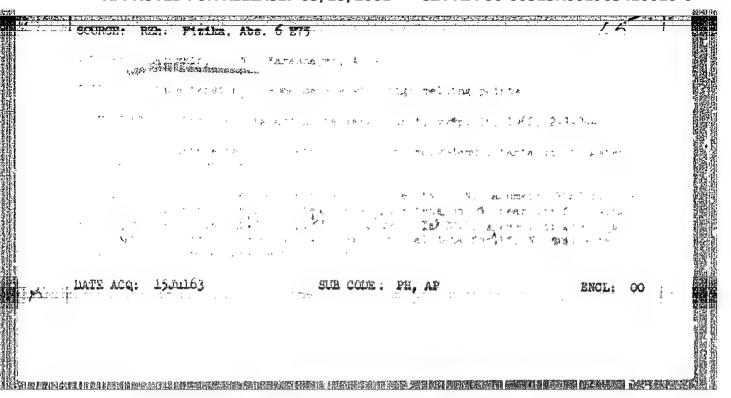




ZADUMKIN, S.N.; NGUYEN FONG

Temperature dependence of the surface energy in transition metals. Fiz. met. 1 metalloved. 16 no.1:136-138 J1 '63. (MIRA 16:9)

1. Kabardino-Balkarskiy gosudarstvennyy universitet. (Transition metals) (Surface energy)



STAKHNEVICH, V.L., insh.; ZAINHAYSKIY, Ia.N., insu.

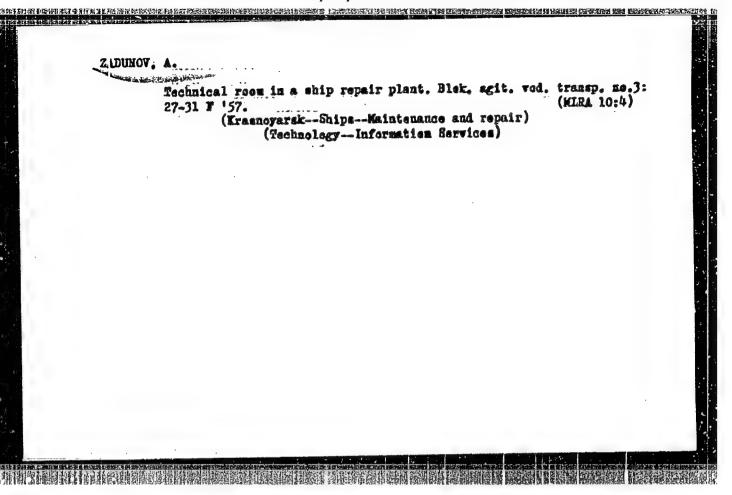
Work of the institute "Giprotorfragedka" in the prospecting of

京都进程的原理。"金融(成立海域的设计的建设设置)原理证据的原理的原理的原理的原理,公司共行行关键或规定。在该规范与政策的规则是被证据的规定,在这一位为对法则共和的计划和

peat resources and designing of peat enterprises. Zbor. st.po izuch. torf.fonda no.2:5-14 57. (MIRA 11:8)

1.Institut "Giprotorfrazvedka." (Peat)

Propagandists of the Tenisey shipyard. Blok.agit.vod.transp. no.12:15-19 Je '56. (KLEA 9:8) 1. Zamestitel' redaktora gazety "Rechnik Teniseya". (Tenisei River...Shipyards)

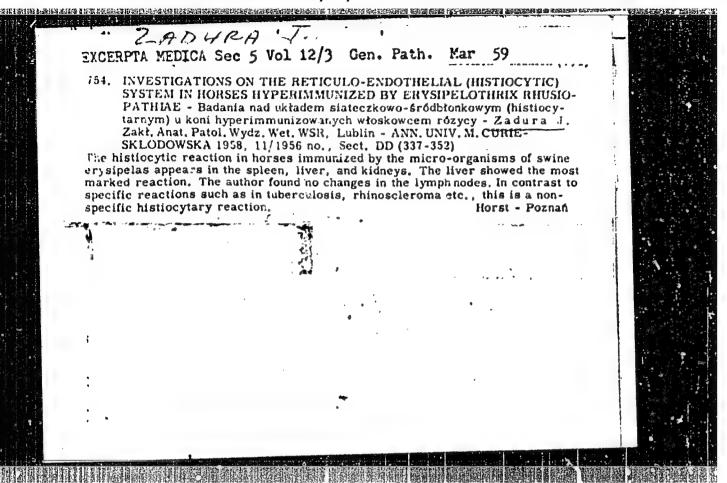


ZADURA, J.

ZULIKSKI, T.: ZADURA, J.

Leptospirosis in silver foxes. Ked.wet. 6 no.2:83-84 F '50. (CLKL 19:3)

1. Of the Institute of General Pathology and Pathological Anatomy of Marie Gurie-Sklodowska University in Lublin and of the Department of Pathological Anatomy of the National Veterinary Institute in Pulacy (Head -- Tadeusz Zulinski, M.D.).



ZADURA, Jan

Paramphistomum cervi (Schrank, 1790) as the cause of a serious disease in stags (Cervus elaphus L). Acta parasit Pol 8 no.21/32: 345-350 *60.

1. Veterinary Institute, Pulawy.

ZADURA, J.; NIEC, L.

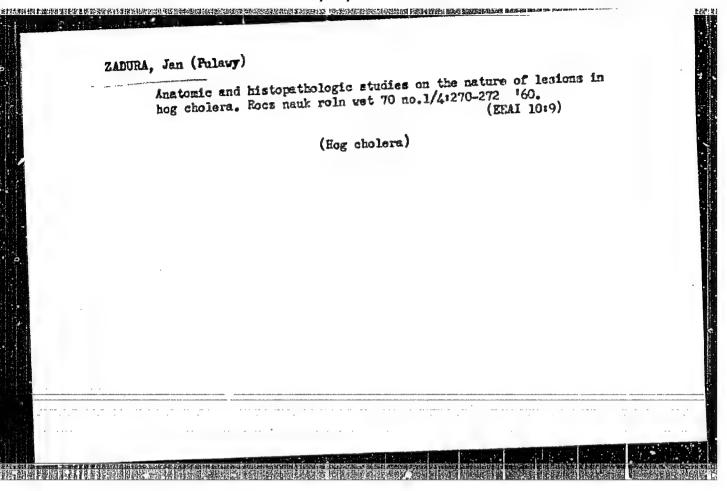
Mass Poisoning of Horses with Phosphorus Compounds Containing Zinc, P. 550,

(MEDYOTIA METERYMANYDHA, vol. 9, Mo. 12, Dec. 1953, Marszawa, Poland).

(MEDYOTIA METERYMANYDHA, vol. 9, Mo. 12, Dec. 1953, Marszawa, Poland).

SO: Monthly List of East European Accessions, (ESAL), LC, Vol. 8, Mo. 5,

May 1955, Uncl.



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ZADURA, J.; NIEC, L. (Pulawy)

Anatomic and histopathologic studies on lesions in the preputial diverticulum of swine with particular reference to the presence of bacterial flora. Rocz nauk roln wet 70 no.1/4:296-297 '60. (FEAI 10:9)

(Swine) (Bacteria)

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Country : POLAND

E

Category: Virology. Viruses of Man and Animals.

Rickettsias.

Abs Jour: Ref Zhur-Biol., No 23, 1958, No 103558

Author : Lutynski, R.; Nowicki, J.; Starzecka, B.; Zadura, St.;

Zienichod, T.

Withe : "Q" Fever in Krakow

Orig Pub: Przegl. lekar, 1957, No 2, 33-38

Abstract: Cases were observed for the first time in 1956 among

persons who had been in contact with sheep wool imported from Rumania shortly before the outbreak. The presence of "Q" fever was confined by the complement-fixation reaction with rickettsial antigens.

Card : 1/1

64

Country : DULGARIA

Category: Virology. Viruses of Man and Animals.

Rickettsias.

Abs Jour: Ref Zhur-Diol., No 23, 1958, No 103595

Author : Angelov, St.; Kuyundzhiyev, Il.; G'l'bov, S.; Nikolov, P.,

Baldichevanov Yevg.

Inst : Microbiological Institute of Bulgarian Academy of Sciences

Title : Study of a "Q"-Fever Outbreak in Bulgarian Slaughter-

House Workers

Orig Pub: Izv. Mikrobiol. in-t B'lg. AN, 1957, 8, 29-34

Abstract: No abstract.

Card : 1/1

POLAND

ZADURA, Stanislaw, Clinic of Infectious Diseases (Klinika Chorob Zakaznych), AM [Akademia Medyczna, Meiical Academy] in Krakow (Director: Prof. Dr. med. W. FEJKIEL)

"Pancreatic Function in Infectious Hepatitis."

Warsaw-Krakow, Przeglad Lekarski, Vol 19, Ser II, No 4, 63, pp 216-217.

Abstract: [Author's Russian summary modified] Authors reports details of an investigation which lead im to the conclusion that epidemic infectious hepatitis does not affect the pancreas. He believes that the specific tropism of the hepatitis virus affects liver, but not pancreas cells, and that there is not sufficient time for disorders of the stomach, intestine, or bile ducts -- which do affect the pancreas -- to develop. Confirmation of the latter was found in the as yet unpublished study of a coleague at the clinic. The nine (9) references comprise six (6) in Polish and three (3) in Western sources.

1/1

POLAND

ZADURA, Stanislaw, Clinic of Infectious Diseases (Klinika Chorob Zakaznych), AM [Akademia Medyczna, Medical Academy] in Krakow (Director: Prof. Dr. med. Wladyslaw FEJKIEL) and the Municipal Hospital (Szpital Miejski) in Skarzysk-Kamienna (Director: Dr. med. Wlodzimierz BORAWSKI)

现的主任经验和首相和全生企业社会全共的经验证明的公司主要社会共享的经验和全国的经历中华的社会主义主义的企业主义的企业会主义的国际的主义和<mark>是企业的主义的主义和国际的主义和国际的主义和国际的主义</mark>的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际的主义和国际

"Typhoid Fever in Patients from a Focus of Infection in the Powiat of Szydlowiec."

Warsaw-Krakow, Przeglad Lekarski. Vol 19, Ser II, No 4, 63, pp 225-227.

Abstract: Author relates some details of treatment of victims of an outbreak of typhoid fever and notes that despite modern method this is still a grave illness with considerable rate of mortality. Malnutrition, rickets, and other complications cause the course to be severe and fatalities high. Corticoids are not as effective as described in the literature and fail absolutely in cases where diseases of circulation are involved. Local control in Poland would improve with speedier and better health station services, control of carriers, and better training of personnel. The seven references include 5 Polish and 2 French.

MACH, Bronislaw; KOWARZ-SOKOLOWSKA, Helena; ZADURA, Stanielaw

Case of acute infectious disease with symmetric cutaneous changes. Polski tygod. lek. 12 no.35:1361-1364 26 Aug 57.

1..Z Kliniki Chorob Zakaznych A. M. w Krakowie; kierownik: prof.
Jazef Kostrzewski iz z Kliniki Dermatologicznej A. M. w Krakowie;
kierownik: prof. Kazimierz Lejman.
(SKIN DISHASES, case reports,
symmetric lesions in acute infect. (Pol))

ZADURA, Stanislaw

A case of typhus abdominalis in a carrier of typhoid bacilli. Przegl. epidem. 15 no.3:289-290 '61.

1. Z Kliniki Chorob Zakaznych AM w Krakowie Kierownik: doc. dr. med. Wladyslaw Fejkiel.

(TYPHOID case reports)

FILITESCU, M.; MANISCR, E.; CODARCEA, M.; AURELIAN, M.; ZADURIAN, Al.;
VINCENTZ, I.

Mathods and apparatus for extraction and migralatermination of

Methods and apparatus for extraction and microistantiation of hydrocarbons from soil and rocks in the geochemical prospecting of hydrocarbon accumulations. Petrol si gaze 14 no.4:169-174 63.

CTHUISKI, Lach.; ESIMARZOWA, Hanna.; ZADIROWICZ, Krystyna.

Disorders of fat metabolism in burn disease. Polski tygod. lck. 12 no.27:1026-1028 l July 57.

1. Z III Chirurgicznej, A.H. w Krakowie; kierownik: prof. dr. med. Jerzy Jasienski. Adres. Krakow Al. Slowackiego 58/3.

(LIPIDS, in blood, in burns (Pol))

(MURKS, blood in, lipidr, (Pol))

KROTOVSKIY, S.S., kand. tekhn. nauk; KHAR'KIN, A.M., inzh.; ZADVIN, M.V., inzh.; KOROTKOV, P.A., inzh.

Making prestressed reinforced concrete construction elements for bunker trestles of blast furnaces. Bet. 1 shel-bet.no.1:11-15 Ja 159. (MIRA 12:1) (Trestles) (Precast concrete construction)

SOV/97-59-1-3/18

Krotovskiy, S.S., Candidate of Technical Sciences; ATTHORS:

Khar'kin, A.M., Engineer; Zadvin, M.V., Engineer and Korotkov, P.A., Engineer.

Reinforced Concrete Elements Construction of Pre-stressed TITLE:

of a Ramp Serving a Blast Furnace (Opyt ingotovleniya predvaritel'no napryazhennykh zhelezobetonnykh elementor

bunkernoy estakady domennoy pechi;.

PERIODICAL: Beton i Zhelezobeton, 1959, Nr.1, pp.11-15 (USSR)

Various basic constructional elements of pre-tensioned reinforced concrete ramps serving blast furnaces (i.e. beams, ABSTRACT:

frames carrying ore bunkers, railtrucks, and slabs) are described. The authors of this project are angineers

Fig.1 shows cross section

Yu.I. Ukhina and A.Ya. Fridkin. of the ramp supported at 4570 mm centres. frame is of 10.38 m span carrying ore bunkers and two railway trucks with a total loading of 500 t (see Fig. 2). The cross-section of the frame is 440 x 2,300 mm, made

from concrete mark 400 reinforced with 26 batches of high Card 1/3

Construction of Pre-stressed Reinforced Concrete Elements of a Ramp Serving a Blast Furnace.

4. 中国的11年,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,11年11日,

tensile reinforcement each containing 18 5 mm wires resisting temporary stresses up to 17,000 kg/cm2. batches of reinforcement are placed in the top zone and 20 batches in the bottom zone of the beam. Fig. 3 illustrates beams carrying railway trucks. Technical advice during the erection of the above construction was given by the ASIA SSSR and Lenpromstroyproyekt. The concreting was carried out on open yards using two tower cranes of 3 t capacity and a bridge crane of 30 t capacity. Curved channels for batch reinforcement were formed by means of rubber tubes of 51 mm diameter. The straight channels were formed by means of steel tubes which during concreting were rotated round their axes every 20 minutes and were pulled out after Fig. 4 illustrates the formwork and the reinforce-me frame. In 1 m³ of concrete the following ment of the frame. ingredients were used: 570 kg of cement mark 500; 640 kg of sand; 1,220 kg of coarse aggregate up to 25 mm in size, and 200 1. of water. The water/cement ratio was 0.35. The concrete was delivered in tipping bunkers and consolidated

Card 2/3

SOV/97-59-1-3/18
'Construction of Pre-stressed Reinforced Concrete Elements of a Kemp Serving a Blast Furnace.

by vibrators I-21, I-50 and I-80. The curing lasted 36 hours at a temperature of 80°C. After that the strength of the concrete was great enough to tension the reinforcement, i.e. 360 kg/cm². Fig.5 illustrates the testing of anchoring by jack. A detailed description of tensioning and anchoring problems is given. The cement grout for filling the channels consisted of 2.5 parts of cement mark 500 and 1 part water. The injecting of the grout was carried out by means of a hand-operated section pump, and when the channel was completely filled a pressure of 2-3 atm was applied. During production of these precast pre-tensioned units various improvements and modifications were found to be necessary. There are 7 figures.

Card 3/3

USSR/Miscellaneous-Production ZADVORNAYA, F. M. Card 1/1 Authors Reshetov, A. V.; Zadvornaya, P. M.; and Petrova, K. I., Engineers Title : Siberian lumberjacks! experiences with electric power save Periodical : Makh. Trud. Rab., 2, 15 - 17., March 1954 Abstract : Report describes the experience of some Siberian lumberjacks who use electrical power saws for the felling of trees. One particular worker using a power saw TeNIIME-K5 attained a daily output of 250 m3 of logs (200% above the government standard). Other workers attained an efficiency of from 160 - 200 m3 per day as compared with the required norm of 116 m3. In addition to the increased output achieved by the use of power saws much fewer accidents have occured since timber cutting was mechanized. Photo of electrical cutting operation is included. Institution Submitted

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NR: AP6035752 VENTOR: Kovalevskiy, B. rbala, Ye. I.; Makarkin,	SOURCE CODE: UR/0413/66/000/019/0124/0124 e.; Lotsmanov, S. N.; Zadvornov, M. G.; Khryukina, N. V.; A. Ya.
G: none TLE: Brazing alloy for tource: Izobreteniya, proportion of the control of	acuum-tube instruments. Class 49, No. 186836 nyshlennyye obraztsy, tovarnyye znaki, no. 19, 1966, 124 nyshlennyye obraztsy, no. 1966, 124 nyshlennyye obraz
Card 1/1	UDC: 621.791.36:621.385.002.2

GOLUTVINA, L.F., kand. tekhn. nauk; PAVLOV, S.A., doktor tekhn. nauk; IVANOVA, Ye.I., nauchnyy sotrudnik; POPOVA, P.A., nauchnyy sotrudnik; ZADVORNOV, V.P., nauchnyy sotrudnik.

Operational properties of fireproof coated materials. Nauch.isal. trudy VN_IPIK no.14:83-92 '63. (MIRA 18:12)

ZADVORNOV, Yu.N.

Characteristics of the cervical section of the spine in people of 31-60 years of age and their diagnostic importance. Trudy LIETIN no.16:302-313 '64.

(MIRA 19:1)

1. Leningradskiy nauchno-issledovatel skiy institut ekspertizy trudosposobnosti i organizatsii truda invalidov.

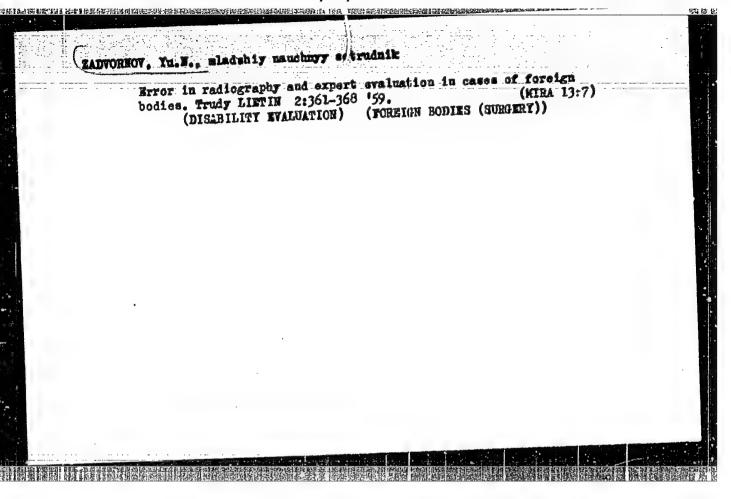
KOSINSKAYA, N.S., pref.; BOGOMAZOVA, V.P., kand.med.nauk; OSTANINA,
A.M., ekspert-khirurg; Zadvornov, Tu.M., mladshiy nauchnyy
sotrudnik

Work capacity in degenerative-dystrophic diseases of the joints
of the upper extremities. Trudy Listin 2:267-286 159.

(MIRA 13:7)

(DISABILITY EVALUATION) (EXTREMITIES, UPPER-DISEASES)

ZADVORNOV, Yu. H., mladshiy nauchnyy sotrudnik Radiographic indexes of the condition of compensation in digestion at a late period following resection of the stomach in the light of the tasks of disability evaluation. Trudy LIETIN 2:352-360 '59. (MIRA 13:7) (STOMACH--RADIOGRAPHY) (DIGESTION) (DISABILITY EVALUATION) (OPERATIONS, SURGICAL)



VORONOV, A.G.; ZADVORNOVA, L.V.

Effect of the relief on the distribution of subtropical forests in Yurnan (the Chinese People's Republic). Biul. MOIP. Otd. biol. 70 no.2:55-66 Mr-Ap '65.

(MIPA 12:5)

ROKHLIN. D.G. ZADVORNOVA. V.P.

Dynamic reentgenologic data on condition of the gastrointestinal system following total gastrottemy in cancer. Vest. rentg., Koskva No.2147-53 Mar-Apr 1953. (OIML 25:5)

对自己性态的表现。1985年的1985年的1985年的1985年的1985年的1985年的1985年的1985年的1985年的1985年的1985年的1985年的1985年的1985年的1985年的1985年的1985年的

1. Professor, Corresponding Member AMS USSR for Rokhlin; Candidate Medical Sciences for Zadvornova, 2. Of the Faculty Surgical Clinic and the Department of Rosmigenology of First Leningrad Medical Institute ineni Academician I.P. Favlov.

2 A D VOR NOVA, V.P. Prolonged observations of the result of combined treatment for patients with cancer of the thyroid gland by the surgical method, patients with cancer of the thyroid gland by the surgical method, patients with cancer of the thyroid gland by the surgical method, patients with cancer of the thyroid gland by the surgical method, IIII 15:8) (IODINE - ISOTOFES) (THIROID GLAMP - CANCER) (I RAYS -THER PEUTIC USE)

> CIA-RDP86-00513R001963410010-6" APPROVED FOR RELEASE: 03/15/2001

Prolonged observations of the result of combined treatment for patients with cancer of the thyroid gland by the surgical method,

X-rays and radioactive iodine. Med.rad. 7 no.6:3 -/2 Je '62.

(MIRA 15:8)

(THYROID GLAND CANCER) (IODINE ISOTOPES)

(X RAYS THERAPEUTIC USE)

ROKHLIN, D.G., prof.; DRACHINSKAYA, Ye.S., prof.; ZADYORHOVA, V.P., dots.

Two-year follow-up on the treatment of thyroid cancer with surgery.
x-rays and radioactive iodine [with summary in English]. Vest.
rent. i rad. 32 no.6:3-7 N-D 157.

1. Iz 1 Leningradskogo meditsinskogo instituta imeni akad.
I.P.Pavlova. 2. Chlen-korrespondent ANN SSSR (for Rokhlin).
(THYROID GLAND, neoplasse
surg., radiother. & radioiodine, 2-year follow-up (Rus)

GONGR. Ref., 7.7., daktor recl. wis. nach (newared); Microslev, 1.8., trab.;

ZALVERNOVA, Ye.G., irsh.; Softan, A.R., inzr.

Reat conductivity of commercial refractories. Trudy inst. coresc.

ne.35:26-44, 4:3.

(MIRG 17:12)

BLUVSHTEYN, M.N.; BORICHEVA, V.N.; Prinimali uchastiye: ALEKSEYEVA, A.N.;

GREBENNIKOVA, Z.Ye.; PETROVA, Ye.V.; ZADVORNOVA, Ye.G.; AYZENBERG, A.S.;

YAKOVLEVA, V.S.

Zonal changes in the properties of magnesite bricks after service in the crown of open hearth furnaces. Ogneupory 28 no.9:413-418 (HIRA 16:10)

1. Vsesoyuznyy institut ogneuporov.

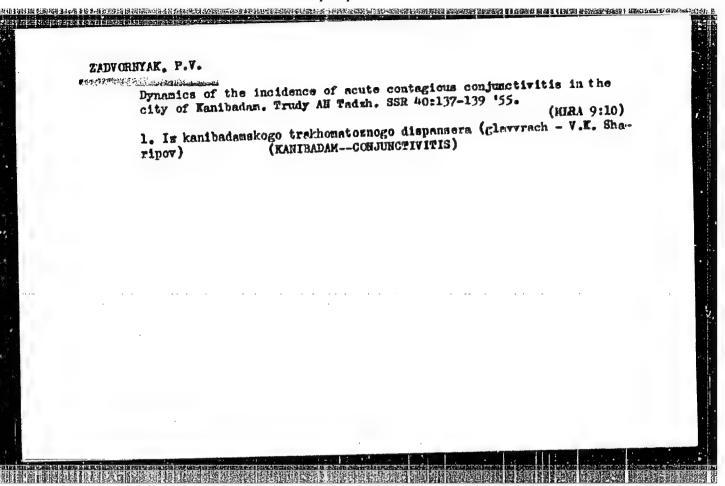
Study of spe	cific therapy of coli	enteritis on an exp My-Je 162.	(MIRA 15:8)
1. Iz Dushar	nbinskogo instiuta epi TESTINES—DISEASES)	demiologii i gigiye (SERUM THERAPY)	eny.

及这些人,这个人还是不多多的。 这一个人,这个人,这个人就是一个人,我们是一个人,我们是一个人,我们就是一个人,我们就是这一个人,我们就是这一个人,我们就是这一个人,我们就是这一个人,我们就是这一个人,我们就是一个人,我们就是一个人,我们也可以是一个人,我们也可以

VAYSBURD, I.A.; ZADVORNYAK, P.V.

Clinical and electrocardiographic observations during the 1957 influenza outbreak in Stalinabad. Zdrav. Tadzh. 6 no.6:19-22 (MIRA 13:4)

l. Iz kafedry infektsionnykh bolesney (sav. - dotsent D.H. Khashimov) Stalinabadskogo medinstituta im. Abuali ibni Sino. (STALINABAD--INFLUENZA) (ELECTROCARDIOGRAPHY)

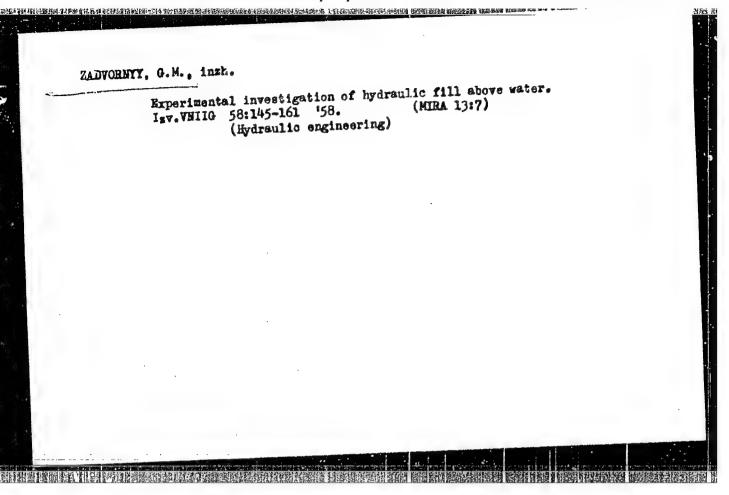


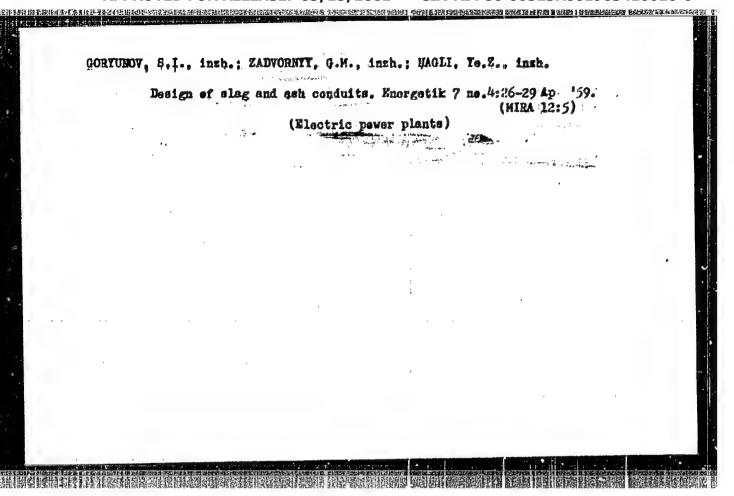
ZADVOHNYAK, P.V.

Protective properties of immune colisera. Zdrav. Tadzh. 8 no.5: 17-20 S-0 '61. (MFA 15:1)

1. Iz Stalinabadskogo instituta epidemiologii i gigiyeny. (SERUM) (INTESTINES_DISEASES)

Experimental studies of the immunology of colienteritis. Zhur. mikrobiol., epid. immun. 32 no.9:112-116 S '61. (MIRA 15:2) 1. Iz Stalinabadskogo instituta epidemiologii i giziyeny. (ESCHERICHIA COLI) (ESCHERICHIA COLI)	ZATS	epin, n.i.: Za	dvornyak, p.v.					
1. Iz Stalinabadakogo instituta epidemiologii i giziyeny. (ESCHERICHIA COLI) (DAGUNITI)		Experiment mikrobiol.	tal studies of the	S NO ALTICAT	TO D OT.	•	ır. 15:2)	
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ZADVOROCHEOV, S.F.; SCRVACHEV, K.F.

Mlectrophoretic study of serum protein fraction in immunized breeder carps and their progeny. Biokhimila 24 no.5:811-816 9-0 '59.

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1. Leboratoriya ikhtiopatologii Vsercesiyskogo nauchno-issledovatel! skogo Instituta prudovogo rybnogo khozysystva i Kafedra biokhimii shivotuykh Gosudarstvennogo universiteta im. H.V. Lononosova, Koskva.

(RUBELLA immunol.) (VACCIMATION) (BLOOD PROTEINS) (FISH dis.)

指位1年結1分民權利的支柱領1月第4分为1931月即於1956年9月1日,1958年國在北部市黨(在中國1月台灣)及在第一年前,在1956年1月台灣(日本日本)(1956年)

ZADVORNYY, G.M., kand.tekhn.neuk; NAGLI, Ye.Z., innh.

Method for calculating hydraulic pressure conveying of ashes and slag. Elek.sta. 32 no.8:20-25 Ag '61. (MGA L4:10) (Hydraulic conveying)

ZADVORNYY, G. M., Candidate Tech Sci (diss) -- "Investigation of alluvium of sandy soil above the water level". Leningrad, 1959. 15 pp (Min Construction of Electric Power Plants USSR, All-Union Sci Res Inst of Hydraulic Engineering im B. Ye. Vedeneyev), 200 copies (KL, No 24, 1959, 136)

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SOV/91-59-4-19/28

AUTHORS:

Goryunov, S. I., Zadvornyy, G. M., Nagli, Ye. S., Engineers

TITLE:

The Calculation of Ash and Slag Pipelines

(O raschëte zoloshlakoprovodov)

PERIODICAL:

Unergetik, 1959, Nr 4, pp 26 - 29 (USSR)

ABSTRACT:

In the power plants of the USSR, ash and slag are transported to the ash dumps by hydraulic devices and pipelines, for example with the Moskal kov hydraulic apparatus or by dredger pumps. In 1956, VNIIG began an investigation of existing hydraulic ash removal systems on an experimental installation for obtaining the theoretical grounds for calculating pressure lines for ash and slag removal. For this purpose, the hydraulic ash and slag removal systems of the Chelyabinsk and Voronezh power plants were investigated. Dredger pump systems were tested at the Shterov GES. The data of these investigations were used for building an experimental installation using the Moskal kov hydraulic equipment reduced to one third its actual size. The experimental data were compared with the data obtained from full-scale ash removal

Card 1/2

SOV/91-59-4-19/28

The Calculation of Ash and Slag Pipelines

installations. Figure 1 shows a graphic representation of this comparison. The authors present formulas for calculating ash and slag pipelines and recommend speeds at which ash and/or slag should be transported. Slag alone may be transported at speeds of 1.8 - 2.2 m/sec, slag and ash 1.6-1.9 m/sec and ash alone 1.2-1.4 m/sec.

There are 2 graphs and 2 tables.

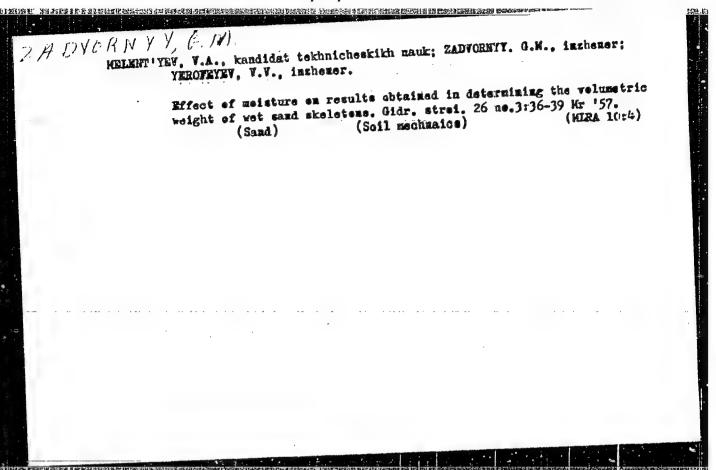
Card 2/2

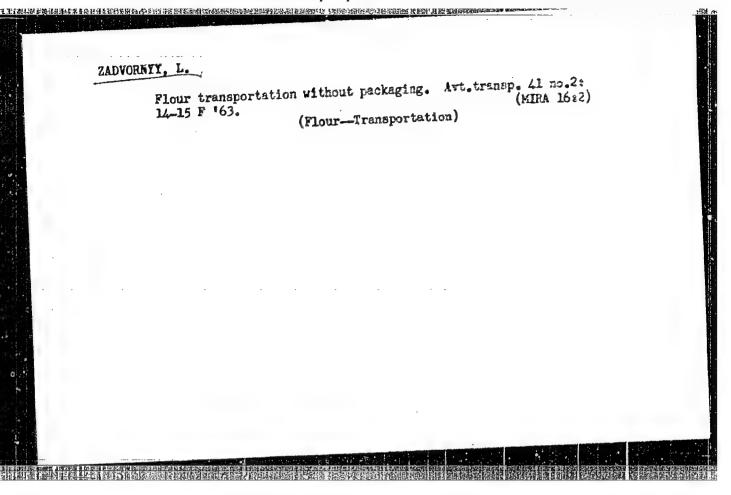
RUSINOV, I.Ya., kandidat tekhnicheskikh nauk; ZADVORNYI, G.M., inshener.

Radiometric methods of investigating the effect of the consistency and specific rate of flow of pulp on the density of washed soils.

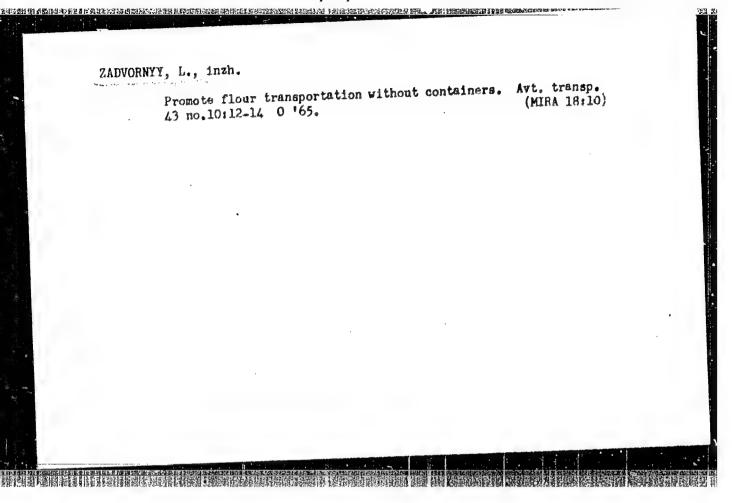
Gidr. stroi. 25 no.2:29-33 '56.

(Soil mechanics)





New trends in the organization of commercial freight hanlage. New trends in the organization of commercial freight hanlage. (NIRA 15:12) Avt.transp. 40 no.12:10-11 D '62. (Transportation, Automotive)



	Through no.7:39-	the Soviet Union 41 '60. (Tourists, Forei	in automobiles gn) (Automobil	(MIRA 13:7) (HEA Touring)	3 0	
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VIADIMIROV, V.; SOKOLOV, A.; YASONAS, G.; Frinirali uchastiya:

ZEDVOREYY, L.F.; VINOGRADOV, V.F.; VIADIMIROV, V.A., red.;

ECIOTINA, A.V., red. izd...va; KHEMOKH, F.M., tekhn. red.

[Across Moscow in an automobile; transit routes and traffic on squares]Po Moskve na avtomobile; transitnye mcrehruty i dvizhente na ploshchadiakh. Koskva, Izd...vo K.-va kommun. khoz.ESFSR, 1962. 284 p. (MIRA 15:9)

(Moscow.-Automobiles---Hoad guidos)

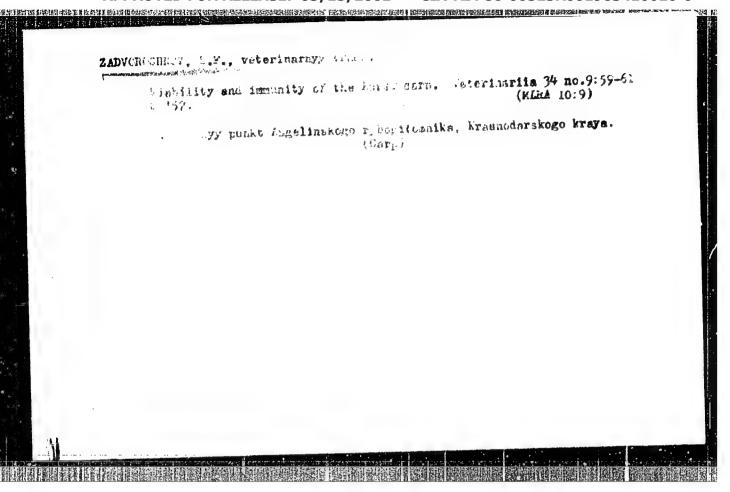
SORVACHEV, K.F.; ZADWOROCHNOV, S.F.; ISAYEV, F.A.

Immunization of fishes. Biokhimiia 27 no.2:202-207 Mr-ip '62.

(MIRA 15:8)

1. Chair of Animal Belochemistry, State University and the AllRussian Institute of Pond and Fish Economy, Moscow.

(FISHES--DISEASES AND FESTS) (IMMINOHEMATOLOGY)



ZADYKH-ZAIE, S.I.; HOZDRIMA, L.V.; PETROV. A.D.

Synthesis of silicon olefins from chlorohydrins. Doki. AN SSSR.

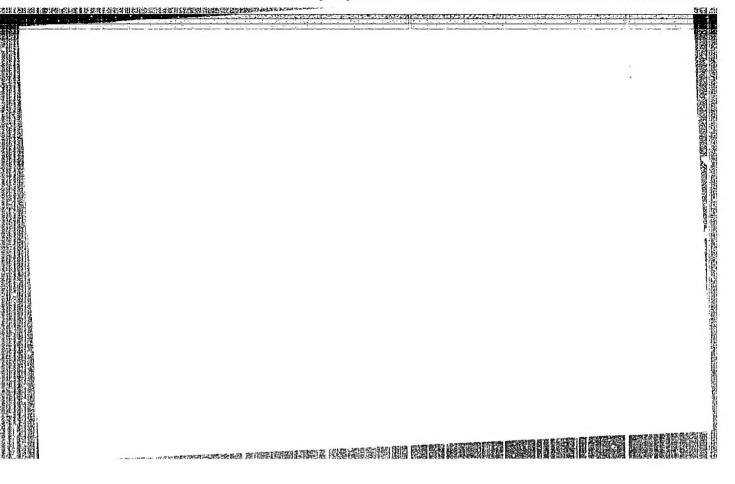
Synthesis of silicon olefins from chlorohydrins.

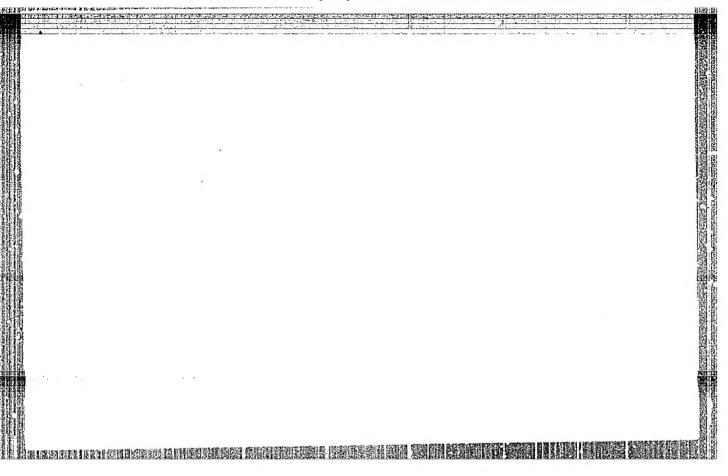
(MIRA 11:4)

1. Chlor-korrespondent AN SSSR (for Petrov)

(Olefins) (Chlorohydrins)

(Silicon organic compounds)





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